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(b) *Internal fuel tanks.* Locomotives equipped with internal fuel tanks shall, at a minimum, comply with the requirements of § 238.223(b) of this chapter.

[71 FR 36914, June 28, 2006, as amended at 74 FR 25173, May 27, 2009]

Subpart E—Locomotive Electronics

SOURCE: 77 FR 21348, Apr. 9, 2012, unless otherwise noted.

§ 229.301 Purpose and scope.

(a) The purpose of this subpart is to promote the safe design, operation, and maintenance of safety-critical, as defined in § 229.305, electronic locomotive control systems, subsystems, and components.

(b) Locomotive control systems or their functions that comeingle with safety critical processor based signal and train control systems are regulated under part 236 subparts H and I of this chapter.

§ 229.303 Applicability.

(a) The requirements of this subpart apply to all safety-critical electronic locomotive control systems, subsystems, and components (i.e., “products” as defined in § 229.305), except for the following:

(1) Products that are in service prior to June 8, 2012.

(2) Products that are under development as of October 9, 2012, and are placed in service prior to October 9, 2017.

(3) Products that comeingle locomotive control systems with safety critical processor based signal and train control systems;

(4) Products that are used during on-track testing within a test facility; and

(5) Products that are used during on-track testing outside a test facility, if approved by FRA. To obtain FRA approval of on-track testing outside of a test facility, a railroad shall submit a request to FRA that provides:

(i) Adequate information regarding the function and history of the product that it intends to use;

(ii) The proposed tests;

(iii) The date, time and location of the tests; and

(iv) The potential safety consequences that will result from operating the product for purposes of testing.

(b) Railroads and vendors shall identify all products that are under development to FRA by October 9, 2012.

(c) The exceptions provided in paragraph (a) of this section do not apply to products or product changes that result in degradation of safety, or a material increase in safety-critical functionality.

§ 229.305 Definitions.

As used in this subpart—

Cohesion is a measure of how strongly-related or focused the responsibilities of a system, subsystem, or component are.

Comeingle refers to the act of creating systems, subsystems, or components where the systems, subsystems, or components are tightly coupled and with low cohesion.

Component means an electronic element, device, or appliance (including hardware or software) that is part of a system or subsystem.

Configuration management control plan means a plan designed to ensure that the proper and intended product configuration, including the electronic hardware components and software version, is documented and maintained through the life-cycle of the products in use.

Executive software means software common to all installations of a given electronic product. It generally is used to schedule the execution of the site-specific application programs, run timers, read inputs, drive outputs, perform self-diagnostics, access and check memory, and monitor the execution of the application software to detect unsolicited changes in outputs.

Initialization refers to the startup process when it is determined that a product has all required data input and the product is prepared to function as intended.